

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for automatically determining the state of said individual cell of the plurality of cells over time of the plurality of cells while the environment is dynamically controlled and maintained in the desired condition, said determining mechanism in communication with the incubating mechanism.

51. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be examined in real time over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for automatically determining the state of said individual cell of the plurality of cells in real time over time, said determining mechanism in communication with the incubating mechanism while the environment is dynamically controlled and

maintained in the desired condition, said determining mechanism in communication with the incubating mechanism.

57. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for automatically tracking and identifying division and differentiation of said individual cell from the plurality of cells over time, said incubating mechanism in communication with the tracking and identifying mechanism.

70. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating a first cell and at least a second cell amongst the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which the first cell and at least the second cell can be individually

examined over time amongst the plurality of cells while the environment is dynamically controlled and maintained in the desired condition;

a mechanism for individually controlling automatically the division and differentiation of the first cell and at least the second cell amongst the plurality of cells while the cells are in the incubating mechanism, said controlling mechanism automatically controls the division and differentiation of the first cell differently from the way it controls the division and differentiation of the second cell amongst the plurality of cells while the cells are in the incubating mechanism, the controlling mechanism in communication with the incubating mechanism; and

a mechanism for individually tracking and identifying division and differentiation automatically of the first cell and at least the second cell amongst the plurality of cells over time, the tracking and identifying mechanism in communication with the incubating mechanism.

74. An apparatus for incubating and determining the state of a stem cell within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each

individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition;

a mechanism for automatically determining a desired state of the stem cell within the plurality of cells over time, the determining mechanism connected to the incubating mechanism, the determining mechanism in communication with the incubating mechanism; and

a mechanism for automatically introducing quiescence media to the stem cell within the plurality of cells in the incubating mechanism when the stem cell is in the desired state to inhibit the proliferation or selected differentiation of the stem cell, said introducing mechanism connected to the incubating mechanism, the introducing mechanism in communication with the incubating mechanism.

75. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition, said incubating mechanism having a mechanism for controlling the environment about said individual cell over

time in the incubating mechanism to maintain the environment about said individual cell over time in a desired condition; and

a mechanism for automatically determining the state of said individual cell of the plurality of cells over time, said determining mechanism in communication with the incubating mechanism.

80. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled closed environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a robotic mechanism including a robotic arm for automatically dispensing and aspirating different material, a mechanism for automatically controlling the environment about said individual cell over time within the plurality of cells in the incubating mechanism to maintain the environment about said individual cell over time within the plurality of cells in a desired condition.

97. An apparatus as described in Claim 80 including a determining mechanism for testing for production or degradation of proteins, simple or complex sugars, individual amino acids, individual member ions, individual molecules with respect to both physical presence and biological activity in the incubating mechanism, said determining mechanism connected with the incubating mechanism.

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114. An apparatus for culturing and analyzing cells, the apparatus comprising:

a biochamber having a plurality of cell housing containers in which cells to be cultured may be introduced therein, the biochamber being a closed system;

a liquid handling system for providing exchange of media to the cells, the liquid handling system in fluid communication with the plurality of cell housing containers;

an image recognition system for analyzing each cell of the cells over time that are disposed in the plurality of cell housing containers, the image recognition system utilizing image recognition software;

a stage for supporting the biochamber, the biochamber, liquid handling system and image recognition system being in movable registration with respect to one another whereby the liquid handling system and image recognition system can access different cell housing containers; and

a system controller capable of regulating interaction between the biochamber, liquid handling system, image recognition system and stage.

124. An apparatus as described in Claim 1 wherein the determining mechanism includes an imaging mechanism which individually images said individual cell of the plurality of cells over time in the incubating mechanism.